

in practice

PRESERVING DR JACKSON'S LEGACY

Joel D. Rudewicz M.A., Former Associate Collection Manager of the Mütter Museum of the College of Physicians of Philadelphia and Ani N. Hatza M.S.¹, Tovah Mitchell M. Litt.², and George Grigonis M.S.³ describe a practical method of conserving a pioneering medical collection

BACKGROUND

Dr. Chevalier Jackson, known as the 'father of endoscopy', was an American laryngologist who pioneered medical techniques and equipment that saved the lives of choking victims during the late 19th and early 20th centuries in Philadelphia, Pennsylvania.

Dr. Jackson kept meticulous records for at least 2,700 cases which formed a reference manual and index used for teaching and the care of future patients. Supporting the records is his collection of retrieved objects from each of his patients, organized chronologically and stored within glass and wooden trays. The items, believed to have once numbered over 3,000, are comprised of varied materials in varied states of condition. Items include half-digested bolus, pins, coins, nails, jewellery, buttons, teeth, dental devices, coal, bullets, poker chips, small figurines, wire, the eye of a teddy bear, glass, rubber, toys, ceramics, and many other miscellaneous items. One intriguing case involved thirty three foreign bodies removed from one patient, lodged for over a week (Fig.1).

In 1924 Dr. Jackson retired and gifted his collection of 'foreign bodies' to the Mütter Museum. In 2011, a restoration initiative for the Chevalier Jackson Collection began with the scanning of the catalogue, cleaning and formatting of the electronic database and the photographing of each item. At this time, it was discovered that much of the physical collection required immediate stabilization and reconstructive conservation care. Many records were also incomplete. Source material was located and incorporated to provide the most accurate index since its original compilation, and the objects, housings, and mounts were restored to preserve the integrity of Dr. Jackson's original intent, despite limited resources. This was achieved through the utilization of easily obtainable materials, simplified preservation strategies and pragmatic approaches to each individual case.

THE CONSERVATION NEED

Dr. Jackson's original organization and housing of the objects was systematic and protective. Once extracted and dried, the item was affixed to a small square of paper using, individually or in combination, iron wire, mucilage glue, or fishing line. Objects were then placed onto a larger 15"×9.25" (38.1cm×23.5cm) piece of blue, grey, or green construction paper as a substrate, and numbered with a typewriter. Similar items (e.g. pins, coins, seeds, etc.) were grouped together and laid out chronologically, resulting in a disjointed numbering system. This was secured with mat-board to the underside of a 15.75"×9"×2" (40cm×22.86cm×5.08cm) pine frame, painted flat



Fig.1. Thirty three foreign bodies removed from a nine-month old patient. The child was discharged from the hospital in excellent condition about two months after admission having suffered from sepsis and temperatures reaching 103 F (39.44 C)

black. Grooves were cut into the opposing sides of the frame 1/4" (6.2mm) down, to allow a 15.5"×8.5" (39.37cm×20.32cm) sheet of glass to be inserted (Fig.2).

Since their donation, most of the foreign bodies have been on continuous display at the Mütter Museum, laid out in drawers, and housed in metal cabinets. In 2012, new wooden cabinets were constructed to enable all known objects to be displayed at once, with the addition of padding in the drawers and a sheet of acrylic over the trays. Despite this added protection, many of the items and trays had already been damaged through decades of reshuffling and ineffective storage techniques.

Items were either missing, absent from the records but present, had come off from the backing, or were breaking apart entirely. Journal publications of Jackson's index were used to fill in gaps in the index and photographic record, and objects were found in various locations throughout the museum. Many backing sheets were discovered to be without frames or only within Mylar sleeves. Moreover, some objects were loose or mixed in with other foreign bodies in envelopes. Still many more were never recovered. Those that were in trays were in varying states



Fig.2. Typical case and item arrangement (glass removed). Trays ranged from twelve to twenty items in a rectangular matrix, with exceptions for larger and asymmetrical sized items. Similar items were grouped together and laid out chronologically. In this case items are fixed by wire, glue or a combination of both using a backing mount for additional support

Fig.3. Acidification was present on nearly all backing sheets and mat-board. This weakened the structural support of the objects and many became detached

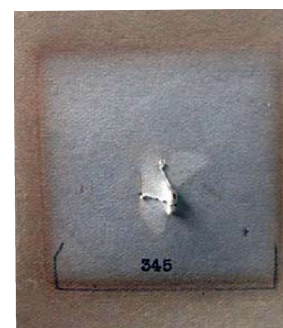




Fig. 4. Paper damage and deterioration: additional backing support was rarely used and resulted in the entire combined weight of the glass, frame, objects, and backings being centred onto a single area. Many trays were damaged throughout years of handling, exacerbated by the weakened integrity of the acid-damaged materials

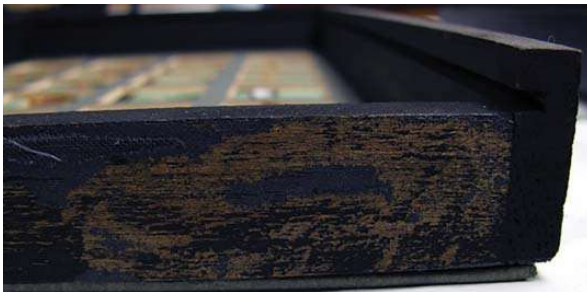
of degradation. The original construction paper density was light (approximately 163 GSM), and had suffered from acidification, crumbling, and tears while the mat-board had yellowed and begun to break apart (Figs.3 & 4). Additional backing support was rarely added by Jackson, and so most of the object weight and structural support was dependent on the combined integrity of the paper and mat-board.



Fig.5. Glass broken along the edges in contact with the wood frame. As a result, shards settled in the cases and became intermingled with objects that had come free of the glue matrix

Housing damage was not limited to the weakened paper. Many frames were separating at the corner butt-joints, and some had broken glass and flaked paint that settled inside the trays (Figs.5 & 6). The greatest concern was for the foreign bodies that had come loose, caused by the weakening and cracking of mucilage glue over time, and the objects that became intermingled. By grouping the foreign bodies by type rather than chronologically, indistinct items that broke into smaller pieces, such as meat and seeds, could not be easily matched to index numbers or patient cases. All of these issues compounded the

Fig. 6. Dr. Jackson used a flat black paint over a pine frame. Through its low durability and through tray reshuffling paint had flaked or abraded off. Much of it settled into the trays with the objects



challenges of the restoration work, and prompted concern over the continued loss of a valuable resource.

CONSIDERATIONS OF APPROACH

The principal question was the extent to which modifications should be made. The nature of the collection and its varied materials made a comprehensive conservation approach impossible. Housing could be restored and failing materials replaced, however the foreign bodies' original states at the time of extraction could not be known. Therefore a conscious decision was made to limit work on the items themselves to reassembling, rehousing and upgrading the mounting materials.

Additional considerations were given to Jackson's original organizational intent. The method of arrangement and placement within the paper squares and trays was done in a systematic fashion and should not be changed. Found items further complicated the effort as many had no source of reference relative to their placement or grouping.

ACTION TAKEN

The best course of action was to retain the integrity of the entire collection with as little intervention as necessary. This provided a two-fold benefit: a limited change to the objects, thus assuring no modifications to pre-existing object conditions, and reduced cost using easily obtainable materials. The basic process consisted of removing the mat-board, old paper, and items then reapplying the items to new backings in a similar fashion while replacing, restoring, or re-fabricating damaged glass and frames.

Fig.7. For granular or fibrous material, the bolus was glued to a small piece of paper using mucilage and then glued to the larger construction paper



Removal and Remounting

After removing the glass, the original mat-board was inspected for integrity. If it was considered to be structurally sound, then it was de-acidified and reused. If not, it was replaced with a new acid-free board.

For bolus (food stuffs and seeds), two approaches were used in the original placement. For granular or fibrous material, the bolus was glued to a small piece of paper using mucilage and then glued to the larger construction paper (Fig.7). For larger objects in single or few pieces, iron wire was used to attach the object through pin holes in the paper backing (Fig.8).

For non-bolus items (pins, hardware, jewelry, etc.), wire was primarily used to attach the objects to the backing, although fishing line was occasionally present (Fig.9). For items that had been broken into pieces, a combination of, depending on weight, wire and glue, or glue alone, was used (Fig.10).

For objects embedded within large amounts of glue, no effort was made to extract them if the glue was intact. Those secured by wire were simply cut free. The entire mounting square was removed and re-affixed to the new card-stock with neutral pH water-based adhesive. When the glue was only weakened, it was reinforced with cyanoacrylate.

Broken objects that could be identified as initially being whole (e.g. bones or pins) were reassembled to match their original structure. Small objects that were directly secured to the backing were re-affixed to a new mounting square. Objects that were intermingled were identified using index information, glue marks on the former mounts and old photographs.

In all cases, if an object was large enough, it was remounted with stainless steel wire instead of glue for reversibility (Figs.11 & 12). No attempt was made to clean any item beyond the removal of glue, dust, and other particulates with soft brushes



Fig.8. For larger objects in single or few pieces, iron wire was used to attach the object through pin holes in the paper backing



Fig.11. Mucilage glue used to adhere object directly to backing



Fig.12. The same object as in Fig.11 with glue removed and remounted with stainless-steel wire

and de-ionized water to preserve the item's condition at the time of its removal from the patient.

Remedial housing

The greatest difficulty in the conservation effort rested principally in identifying, reassembling, and remounting objects. Most extant frames were in relatively good condition. Those in need of attention had loose nails, flaking and abraded paint, or broken wood. These issues were attended to, and a thin layer of gloss black paint was applied to all exposed portions of the frame. This was specifically chosen for its cost, low levels of volatile organic compounds, greater durability, good vapour barrier, and acetic acid emissions that level off quickly.

In some instances the frames had been lost, and only the matted and mounted objects remained. New glass and frames replicated the old design. Frames were cut to the same lengths as the originals and assembled using the same butt-joint construction method. A thin layer of white, neutral pH, water-based adhesive was spread onto the frame edges, and the frames were laid over the new mat-board. Weights were used along the edges of the frames to provide even pressure over the entire frame during drying, and this process was repeated once all mat-boards had been secured to the frames (Fig.13).

Item numbers were recorded in sequence and entered into a word processing template. Clear mailing labels were chosen as a replacement for type-written numbers because of their simple adhesion, ease of use, and clean removal. This was the only modification made to Dr. Jackson's original structure. Number placement was moved from the paper itself to the mat-board below to free up the space within the square cut-outs for the objects; many had previously obscured the number making identification difficult without opening the case. In addition, by using labels placed below the objects the size of the numbers could be increased to improve readability (Fig.14).

Glass free of damage was cleaned and reinserted into the trays. Those that were damaged or missing were discarded, and a new sheet of glass of the same thickness was either cut to size using a ruler, glass-cutter, and glazing pliers, or purchased commercially. The completed tray was then switched out with an unconserved tray on exhibit ensuring that the maximum number of items were exhibited at all times (Fig.15).

Fig.9. Objects were attached to their backing primarily with wire and occasionally fishing line



Fig.10. Broken items were attached with wire and glue or just glue according to weight.



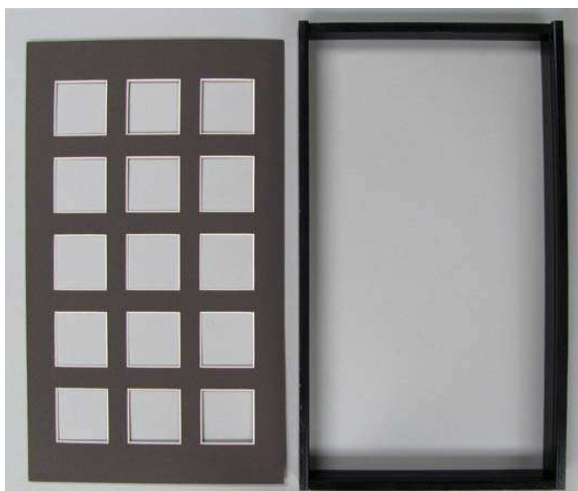


Fig.13. Remedial housing. Frames were reassembled, sanded and painted. New mat-boards were computer cut to reflect the original layout. Neutral pH, water-based adhesive was thinly applied to the underside of the frame and the frame placed atop the mat-board. Weights placed on top of the frame applied firm and even pressure during drying

SUMMARY

As a doctor, Dr. Jackson contributed his experience and knowledge to expand the frontiers of medical innovation, and as a donor, gifted the collection of his life's work to be a record of medical history. It was essential that such an invaluable resource endure, and continue to be used as a teaching tool and reminder of Dr. Jackson's pioneering medical achievements, despite economic and academic obstacles.

A pragmatic 'divide and conquer' approach allowed for latitude in the remedial and restorative conservation of materials and methods for presentation and housing of the foreign bodies. Yet the remedial treatment of the foreign bodies themselves was less flexible in an effort to preserve the objects as they were originally retrieved, ensuring the legacy and intent of Jackson's work. Minimal methods were employed on a case by case basis and enabled processes to continually evolve and adapt to changing remedial and restorative issues, without the need to re-evaluate procedures or to secure specialized expertise. Easily obtainable materials kept costs down, in the context of a limited budget, and maintained the focus on selecting the best conservation approach to each individual item.

A pragmatic approach to conservation is worthy of consideration by any institution that has limited resources and seeks to assure the continued integrity of their collection. Minimal methods make certain that the most serious issues are attended to while allowing underfunded and understaffed organizations room for error and correction. Once broken down into manageable deliverables, even large and daunting conservation issues can be attended to with skillful care without need for elaborate, and expensive, strategies.

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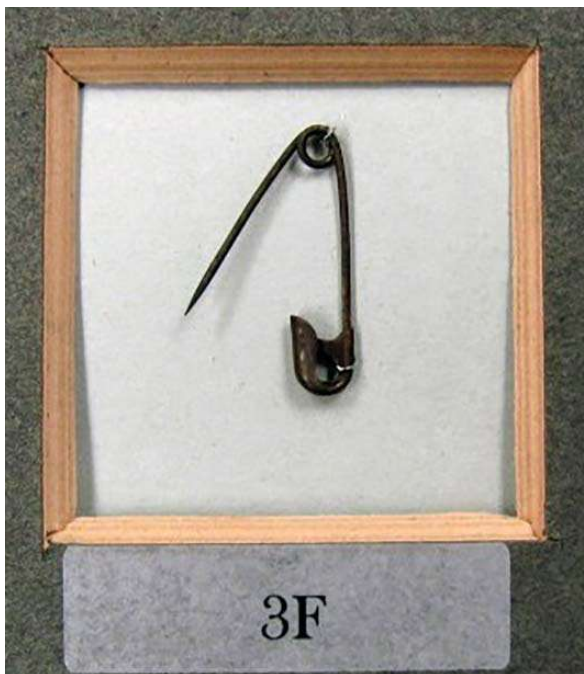


Fig.14. The new labelling format. Moving the numbering from the paper to the mat-board below freed up space for objects that were larger than most and allowed formerly obscured numbers to be larger and more easily read



Fig.15. Before conservation: the left tray shows flaking paint, broken glass, loose objects and acidified paper and board. On the right, an example of objects and tray after conservation. Paper backing replaced with acid-free 160 lbs card-stock, mat-board de-acidified, glass replaced, objects reassembled and remounted, frame repaired and numbering placement moved

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